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ENVIRONMENTAL RESTORATION EFFORTS

MANDATE
(Acts, Laws, Statutes, Agreements, Permits)

DESCRIPTION

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CERP

Comprehensive Everglades Restoration Plan:

- 2000 Water Resources Development Act (WRDA), Public Law 106-541, Title VI, Section 601

The primary purpose of the CERP is to restore the south Florida ecosystem, which includes the Everglades. As required by law, the CERP also provides for the other water-related needs of the region including urban and agricultural water supply and flood protection. This plan will address four fundamental issues: the quantity, quality, timing and distribution of water.

Through the Water Resources Development Act of 2000, Congress has authorized an initial package of projects needed to expedite ecological restoration of the south Florida ecosystem. The initial authorization includes 1) four pilot projects, 2) ten specific project features, and 3) a programmatic authority through which smaller projects can be more quickly implemented. Authorization for the remaining features of the plan will be requested in subsequent Water Resources Development Act proposals.

Principal features of the CERP include:

- Surface Water Storage Reservoirs
- Aquifer Storage and Recovery
- Stormwater Treatment Areas
- Reuse Wastewater
- Seepage Management
- Removing Barriers to Sheetflow
- Operational Changes

Comprehensive Everglades Restoration Plan ~ Web Site

Water Resources Development Act of 2000, Public Law 106-541, Title VI, Section 601 [PDF]

2000 Water Resources Development Act ~ Initial Projects

Water Resources Development Act of 1996

STAs

Stormwater Treatment Areas:

Stormwater Treatment Areas (STAs) are large, constructed wetlands that remove pollutants from stormwater runoff. While the removal mechanisms include both biological and chemical processes, the long-term removal mechanism is storage as partially decomposed organic material.

- 1994 Everglades Forever Act (EFA), Florida Statutes, Chapter

The 1994 Everglades Forever Act mandated construction of the Stormwater Treatment Areas (STAs) to improve water quality in the Everglades. After it was constructed, the Everglades Nutrient Removal (ENR) project functioned under an operating permit from the Florida Department of Environmental Protection (FDEP). The FDEP operating permit (Permit Number 502232569) was issued on Feb. 18, 1994, and modified on Nov. 22, 1995. The main conditions of this permit included requirements for vegetation monitoring, water quality monitoring, hydrologic monitoring and mercury research.

Runoff from the Everglades Agricultural Area was routed through an inflow canal for treatment in the ENR project. The water was first diverted into two upper cells where the initial nutrient removal occurred. Water was then routed to two smaller cells for secondary treatment. Phosphorus is naturally removed in aquatic systems by deposition and/or being taken up by aquatic plants. When the water has passed through the ENR treatment areas, it is then discharged to the Arthur R. Marshall Loxahatchee National Wildlife Refuge, located to its east.

1994 Everglades Forever Act (EFA), Florida Statutes, Chapter 373.4592

Environmental Conditions Report - STAs

Everglades Consolidated Report

373.4592	An important aspect of the ENR project was that the information obtained from its operation could be used for the design and construction of other STAs, which are a key to improving the quality of water entering the Everglades system.	
KRR **Kissimmee River Restoration:** The Kissimmee River Restoration Project will restore over 40 square miles of river/floodplain ecosystem including 43 miles of meandering river channel and 27,000 acres of wetlands. The restoration project will be jointly implemented and cost-shared by the South Florida Water Management District (SFWMD) and U.S. Army Corps of Engineers (USACE). ● 1992 Water Resources Development Act (WRDA), Public Law 102-580, H.R.6167, Section 101(8) ● 1994 Project Cooperative Agreement	The Kissimmee River Restoration Evaluation Program (KRREP) is designed to collect, manage, evaluate and disseminate information related to activities, observations, and measurements associated with restoration of the Kissimmee River/floodplain ecosystem. The primary program objective is to design, implement and evaluate data collection projects that are relevant to endpoints and metrics, which have been identified as indicators of where the ecosystem is on its trajectory towards restoring ecological integrity. The KRREP is designed to track initial and long-term responses to the reconstruction of the ecosystem by evaluating a suite of indicators representing physical, chemical, biological and functional components of the system at multiple spatiotemporal scales of observation. Successful restoration of the ecological integrity of the Kissimmee River ecosystem will be assessed by achievement of established expectations for physical, chemical, biological and functional responses. Formulated expectations include the mechanism by which attributes will change from the existing or baseline condition, the projected time frame or temporal trajectory for the response and how achievement of the expectation will be evaluated. In addition to providing success criteria, restoration expectations will be used as a basis for developing and implementing adaptive adjustments to the restoration project.	1992 Water Resources Development Act (WRDA), Public Law 102-580, H.R.6167, Section 101(8) 1994 Project Cooperative Agreement Kissimmee River Restoration ~ Web Site
BMPs **Best Management Practices:** BMPs are management and cultural practices that allow land users to get the most beneficial use out of the land while preserving the purity of water bodies. Land users interested in limiting their exposure to unwanted penalties and liabilities should utilize Best Management Practices. BMPs help to promote low impact development or conservation design. BMPs are the primary mechanism for treating stormwater to achieve water quality standards. ● 1994 Everglades Forever Act (EFA), Florida Statutes, Chapter 373.4592 ● 1991 Marjory Stoneman Douglas Everglades Protection Act,	The primary sources of water contamination are suspended solids, nutrients, animal wastes and pesticides. When these substances are present in excess, algae blooms, fish kills, sedimentation, health hazards, aesthetic changes and modifications of plant and animal species diversity may result. Florida's growth management and urban stormwater management programs rely on both nonstructural and structural BMPs for controlling nonpoint source pollution and protecting designated uses of water bodies from Florida's rapid urbanization. Nonstructural BMPs are those that can be used to prevent the generation of nonpoint source pollutants (water pollution from stormwater runoff and indirect sources such as septic tanks and atmospheric deposition) or to limit their transport off site. Florida requires the use of nonstructural BMPs such as land management and the preservation of wetlands and floodplains. Other nonstructural BMPs used include street sweeping, proper use and disposal of fertilizers and pesticides and public education programs. The Florida Yards & Neighborhoods program is an excellent example of a nonstructural program that is helping to minimize the use of pesticides, fertilizers and irrigation water by educating citizens and builders about the use of native plants. Technology-based structural BMPs are also required for all new developments and redevelopments to lessen the stormwater peak discharge rate, volume and pollutant loading that accompany urbanization. The most widely used structural BMPs in developing areas include retention or infiltration areas, wet detention ponds, constructed wetlands, sand filters, bio-retention areas, and vegetated buffer strips along streams and swales. BMPs are implemented through a permitting process. When	Everglades Agricultural Area farmers (south of Lake Okeechobee) are required to reduce the total phosphorus in the runoff from their land by 25 percent each year by implementing BMPs to cleanse the water. The annual phosphorus load reduction is calculated by comparing the current year's amount with those from the 10-year base period of 1978-1988, before BMPs were in place and adjusted for differences in rainfall between the two periods. For Water Year 1999, EAA farmers have achieved an average 44 percent reduction over the estimated phosphorus load that would have occurred had they not implemented BMPs. EAA farmers have implemented a variety of BMPs to reduce the levels of phosphorus coming off their farms. The main BMPs include efficient fertilizer application, control of erosion and sediment, and effective stormwater pumping operations. 1994 Everglades Forever Act (EFA), Florida Statutes, Chapter 373.4592

Florida Statutes, Chapter 373.4572

appropriate BMPs are in place, records are kept to ensure accurate implementation and measurements are taken to monitor how well BMPs are working.

One of the cornerstones to improvement in the long-term ecological health of the Everglades is dependent on a strong and effective best management practices implementation program.

The District is required to develop and implement BMP regulatory programs under the State of Florida 1994 Everglades Forever Act. The Everglades Works of the District (EVER) Permit Program was implemented in 1992 pursuant to the provisions of the Everglades Protection Act of 1991 (Chapter 373.4592, Florida Statutes). Rule 40E-63, Florida Administrative Code, was developed to implement the Everglades Protection Act mandate. The Rule requires all Everglades Agricultural Area landowners holding property that discharges water to District "works" to obtain a "Works of the District" permit, implement BMPs and monitor the quality and quantity of waters discharged from their lands into the District's works. The rule also requires the District to evaluate data collected to assess the general trend in phosphorus load reduction; determine whether the EAA basin is in compliance; and publish results annually.

1991 Marjory Stoneman Douglas Everglades Protection Act, Florida Statutes, Chapter 373.4572

Everglades BMP Program - Water Year 2000

Complete Citrus BMP Manual is now available online.

Everglades Stormwater Program Summary [PDF]

Florida Watershed Restoration Act, Florida Statues, Chapter 403.067

Major Water Resource Legislation [PDF]

SWIM

Surface Water Improvement & Management:

A comprehensive statewide program for restoring and protecting priority surface waters of state or regional significance, established in 1987 by:

- Florida Statutes, Chapter 373.451-373.4595

In 1987, the Florida Legislature enacted the Surface Water Improvement and Management (SWIM) Act to create a program which focused on preservation of the state's water bodies that were in good condition, and restoration of some of its most significant water bodies.

Specifically named in the legislation were Lake Okeechobee, Lake Apopka, Tampa Bay, the Indian River Lagoon and the Everglades. Florida's five Water Management Districts (WMD's) were delegated the responsibility for implementing the SWIM Act, and all have developed priority lists of water bodies within their jurisdictions, which formed the focus of their respective SWIM Programs.

SWIM management plans have been developed, outlining a wide range of scientific and planning programs designed to prevent water quality problems. SWIM funds help pay for the collection and analysis of valuable data on water quality, land cover and ecological communities. The data is used to design and implement management strategies to protect the natural resources within the watersheds.

Biscayne Bay SWIM Plan

Biscayne Bay SWIM Plan Update

Lake Okeechobee SWIM Plan

Indian River Lagoon SWIM Plan - Executive Summary

Indian River Lagoon SWIM Plan Update

Florida Watershed Restoration Act

Major Water Resource Legislation [PDF]

LAKE OKEECHOBEE

Lake Okeechobee Protection Program:

The Lake Okeechobee Protection Program is designed for the protection and restoration of Lake Okeechobee.

- Florida Statutes, Chapter 373.4595

This program consists of seven distinct components:

1. A comprehensive **Lake Okeechobee Protection Plan**, including an implementation schedule, by Jan. 1, 2004.
2. A **Lake Okeechobee Construction Project**, consisting of two phases. Phase I consists of initiating construction of the Lake Okeechobee Critical Project, involving wetland restoration and construction of two pilot stormwater treatment areas; a tributary sediment removal pilot project; and starting design work on the Taylor Creek/Nubbin Slough Reservoir-assisted stormwater treatment area as part of the Comprehensive Everglades Restoration Plan (CERP). Phase II starts in 2004, and includes additional projects to meet water quality standards in the watershed.
3. A **Lake Okeechobee Watershed Phosphorus Control Program**. This is a multifaceted approach to reduce phosphorus loads through continued implementation of existing regulations and best management practices, development and implementation of improved best management practices, improvement and restoration of the hydrologic functions of the natural and managed systems and utilization of alternative technologies for nutrient reduction.
4. A **Lake Okeechobee Research and Water Quality**

Lake Okeechobee Protection Program, Florida Statutes, Chapter 373.4595

Lake Okeechobee Watershed Management ~ Web site

Monitoring Program. This program has several components including: (1) evaluate water quality data to develop a baseline to represent present conditions, monitor long-term ecological changes and measure compliance with water quality standards for total phosphorus according to whatever TMDL is established; (2) develop a water quality model for the lake (by 7/2003); (3) determine the relative contribution of phosphorus from all identifiable sources (by 7/2003); (4) assess sources of phosphorus from the Upper Kissimmee Chain-of-Lakes and Lake Istokpoga (by 7/2003); (5) develop recommendations for structural and operational improvements in the watershed (by 7/2003); and (6) evaluate feasibility of alternative nutrient reduction technologies (by 7/2003).

5. A **Lake Okeechobee Exotic Species Control Program**. This program identifies threatening exotic species and implements measures to protect the native flora and fauna (by 6/2002).
6. A **Lake Okeechobee Internal Phosphorus Management Program**. This program involves completion of a feasibility study to assess the technical feasibility, economic considerations, and all reasonable methods of phosphorus removal from the lake itself (by 7/2003).
7. An **Annual Progress Report**. This report includes a summary of water quality conditions and status of the Lake Okeechobee Construction Project (each Jan. 1, starting 1/2001).

MFLs

Minimum Flows & Levels:

By state law, MFLs are the flow or level of ground or surface water at which further withdrawals of water would be significantly harmful to the water resources or ecology of the area. They are often specified in agency rules and regulations as numbers representing flows or levels, but can also be the procedure used to calculate a flow or level.

- Florida Water Resources Act,
Florida Statutes, 373.042(1)(a)&(b)

The establishment of minimum flows for surface watercourses and levels for both surface waters and aquifers is critical to maintaining environmental quality.

Minimum flow for a surface water body is the limit at which further withdrawals would be significantly harmful to the water resources or ecology of an area. Flows are measured in cubic feet per second (cfs).

Minimum water level is the level of ground water in an aquifer and the level of surface water at which further withdrawals would be significantly harmful to the water resources of an area. Levels are measured as feet above mean sea level (ft, msl).

MFLs are to be used to guide water resource and water supply development to ensure water resource sustainability for people and the natural environment. They are also to be used to assist in making water use and other permitting decisions.

If a flow or level falls or is projected to fall below an established MFL, the regional water supply plan shall implement either a Recovery Strategy or Prevention Strategy to avoid significant or serious harm to the water resource.

There are several reasons why MFLs are being established:

- It's a legal mandate of the Florida Water Resources Act.
- To protect water resources and ecology such as fish production and wetlands.
- To determine water availability.

Florida Watershed Restoration Act, Florida Statues, Chapter 403.067

Major Water Resource Legislation [PDF]

Minimum Flows & Levels Web site

Minimum Flows & Levels WebBoard

Minimum Flows & Levels Recovery & Prevention Strategy [PDF]

TMDL

Total Maximum Daily Load:

More specifically, TMDL is a process whereby point source discharge permits are considered within the context of all pollutant loadings to a water body and the overall pollutant load reductions needed to achieve and maintain state water quality standards.

U.S. EPA Water Quality Planning and Management Regulation (40 CFR Part 130)

A calculation of the maximum amount of pollutant that a water body can receive and still meet water quality standards.

- U.S. Environmental Protection Agency's Water Quality Planning and Management Regulation (40 CFR Part 130)

This regulation requires that states develop TMDLs for their priority water bodies and submit them to EPA for approval. Additionally, each state is required to develop a 303(d) list of waters not meeting water quality standards or not supporting their designated uses (aquatic life, recreation, fish/shellfish consumption, drinking water).

As part of the Federal Clean Water Plan, the U.S. Environmental Protection Agency (EPA) regulations of TMDLs will establish the framework to identify and cleanup our nation's polluted rivers, lakes, streams and estuaries.

The primary mission of EPA's TMDL program is to protect public health and ensure healthy watersheds.

TMDL process:

1. Identify waters that do not meet water quality standards. In this process, the state identifies the particular pollutant(s) causing the water not to meet standards.
2. Prioritize waters that do not meet standards for TMDL development (for example, waters with high naturally occurring "pollution" will fall to the bottom of the list).
3. Establish TMDLs (set the amount of pollutant that needs to be reduced and assign responsibilities) for priority waters to meet state water quality standards. A separate TMDL is set to address each pollutant with concentrations over the standards.
4. Develop a strategy to reduce pollution and assess progress made during implementation of the strategy. Watershed partnerships are normally formed at this stage of the process. Partners work together to develop a plan of action which is shared with the state and if approved, is incorporated into the state's TMDL strategy.

303(d) List

EPA's TMDL Page

EPA - Total Maximum Daily Loads

Florida Watershed Restoration Act, Florida Statutes, Chapter 403.067

Major Water Resource Legislation [PDF]

PLRG

Pollutant Load Reduction Goal:

The amount of needed pollutant load reduction.

- Florida Administrative Code, Chapter 62-40, 432(3)(b)

PLRGs are the targeted numeric reductions in pollutant loadings to a water body needed to achieve watershed management goals. Watershed management goals are defined as the goals that encompass any one or all of the major Water Management Districts' (WMDs) responsibilities (flood protection, water supply, water quality, and environmental system protection and enhancement). The goals provide the general direction for developing cohesive strategies to manage water resources within a drainage basin, sub-basin or segment thereof.

Stormwater PLRGs are a major component of the load allocation part of a TMDL. To date, in south Florida, stormwater PLRGs have been established for the Everglades and Lake Okeechobee.

At the state level, the Florida Department of Environmental Protection (FDEP) or the WMD's have the authority to set regional stormwater management goals and policies to preserve or restore beneficial uses of receiving waters.

PLRGs can be used to establish water quality goals, to estimate in-lake nutrient processing and to examine current and historic conditions, etc. PLRGs can also be applied to develop Minimum Flows & Levels (MFLs).

Florida Administrative Code, Chapter 62-40, 432(3)(b)

Lake Okeechobee Surface Water Improvement & Management (SWIM) Plan - PLRGs [PDF]

SETTLEMENT

Settlement Agreement:

- 1991 Settlement Agreement & Consent Decree,

USA v. SFWMD, 88-1886-CIV-HOEVELER

This agreement establishes interim and long-term total phosphorus concentration limits for the Loxahatchee National Wildlife Refuge and the Everglades National Park.

The Settlement Agreement entered into by the federal government, the state of Florida and the South Florida Water Management District, in 1991, establishes interim and long-term total phosphorus concentration limits for the Loxahatchee National Wildlife Refuge and the Everglades National Park to be met by 1997 and 2002, respectively. The agreement calls for the establishment of a Stormwater Treatment Area program (to meet long-term phosphorus

Settlement Agreement Report

	limits) and a Regulatory program (with BMPs as a key component). Specific water quality monitoring and analysis efforts are needed to meet the conditions of this agreement, as well as the Everglades Forever Act.	
CWA **Clean Water Act:** The Clean Water Act is a 1977 amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating discharges of pollutants to waters of the United States. ● 1991 Settlement Agreement & Consent Decree, USA v. SFWMD, 88-1886-CIV-HOEVELER	The law gave EPA the authority to set effluent standards on an industry basis (technology-based) and continued the requirements to set water quality standards for all contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless a permit (NPDES) is obtained under the Act. The 1977 amendments focused on toxic pollutants. In 1987, the CWA was re-authorized and again focused on toxic substances, authorized citizen suit provisions, and funded sewage treatment plants under the Construction Grants Program. The CWA contains provisions for the EPA to delegate of many permitting, administrative and enforcement aspects of the law to state governments. In states with the authority to implement CWA programs, EPA still retains oversight responsibilities.	1997 Clean Water Act, 33 U.S.C. s/s 1251 et seq.
ESA **Endangered Species Act:** The purposes of the Endangered Species Act of 1973 are to conserve the ecosystems that host endangered or threatened species and to conserve endangered or threatened species themselves. ● 1973 Endangered Species Act, 16 U.S.C. 1531 et seq.	The law establishes that species of fish, wildlife and plants that have been depleted in numbers and are endangered or threatened with extinction have aesthetic, ecological, educational, historical, recreation and scientific value to the United States and its people. The act encourages states to develop and maintain conservation programs which meet standards for safeguarding the nation's fish, wildlife and plants. The Endangered Species Act sets forth a basis for determining endangered and threatened species along with protective regulations, recovery plans, monitoring, biological assessment, guidelines, land acquisition, cooperation with states, international cooperation, allocations and appropriations of funds, implementation conventions and enforcement, etc.	1973 Endangered Species Act, 16 U.S.C. 1531 et seq.
Water Reservations: When water is reserved, the District cannot allocate it to consumptive use permittees. Water reserved for the natural system is for the "protection of fish and wildlife". However, water can also be reserved for public health and safety.	State law requires the adoption of water reservations (Title XXVIII) Chapter 373, F.S. The reservations of water for the natural system will be made by the District pursuant to state law. The District will accomplish the reservations through the rule making authority of the Governing Board. The state law on water reservations, in (Title XXVIII) Section 373.223(4), F.S., provides: "The governing board or the department, by regulation, may reserve from use by permit applicants, water in such locations and quantities, and for such seasons of the year, as in its judgment may be required for the protection of fish and wildlife or the public health and safety. Such reservations shall be subject to periodic review and revision in the light of changed conditions. However, all presently existing legal uses of water shall be protected so long as such use is not contrary to the public interest." When water is reserved, the district cannot allocate it to consumptive use permittees. Water reserved for the natural system is for the "protection of fish and wildlife". However, water can also be reserved for public health and safety. In January 2002, an interagency team (Water Reservation Evaluation Team) was formed to outline a process for identifying and protecting water made available through implementation of CERP for the	Reservation of Water for the Environment and Assurances for Existing Legal Sources Consistent with Federal and State Law

natural system and human uses, consistent with state and federal law. This team effort is on-going currently and consists of representatives from the following agencies: South Florida Water Management District, Department of Interior, Everglades National Park, U.S. Army Corp of Engineers, Florida Department of Environmental Protection, and U.S. Fish & Wildlife Service.